

Sub: **Electrical Measurements** Time: 1¹/₂ Hrs. Date: 6-11-2017 Max Marks: 30M

Question 1 is compulsory. Answer one from 2 or 3 and one from 4 or 5.

S.no	Question	Mar	Uni	CO	Cognitive
		ks	t		Level
1.a)	Define the energy meter constant.	2	3	C303.3	Remember
1.b)	Define the power factor.	2	3	C303.2	Remember
1.c)	Describe the disadvantages of shunts compare with instrument transformers.	2	4	C303.2	Remember
1.d)	Classify the ballistic tests.	2	5	C303.5	Understand
1.e)	Explain how to calibrate voltmeter by using DC potentiometer	2	4	C303.3	Understand
2.	Derive the equation for driving torque for dynamometer wattmeter for measure the power	10	3	C303.3	Understand
3.	Derive the equation of transformation ratio and phase angle of potential transformer and explain the design considerations to reduce the turn's ratio and phase angle errors.	10	4	C303.2	Understand
4.	Describe the dynamometer type power factor meter construction and operation.	10	3	C303.2	Understand
5.	Describe the determination of B-H curve by using method of reversals.	10	5	C303.5	Understand

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<u>G.PULLAIAH COLLEGE OF ENGINEERING & TECHNOLOGY (AT), KURNOOL</u> B.Tech – III-I Semester (R15) MID II Examinations

SET 1

Branch: EEE Sub: Electrical Measurements Time: 1½ Hrs.

Date: 6-11-2017 Max Marks: 30M

Cine	Question 1 is compulsory. Answer one from 2 of 5 and one from 4 of 5.					
5.00	Question	IVIALKS	Unit	0	Cognitive Level	
1.a)	Define the energy meter constant.	2	3	C303.3	Remember	
1.b)	Define the power factor.	2	3	C303.2	Remember	
1.c)	Describe the disadvantages of shunts compare with	2	4	C303.2	Remember	
	instrument transformers.					
1.d)	Classify the ballistic tests.	2	5	C303.5	Understand	
1.e)	Explain how to calibrate voltmeter by using DC	2	4	C303.3	Understand	
	potentiometer					
2.	Derive the equation for driving torque for	10	3	C303.3	Understand	
	dynamometer wattmeter for measure the power					
3.	Derive the equation of transformation ratio and	10	4	C303.2	Understand	
	phase angle of potential transformer and explain the					
	design considerations to reduce the turn's ratio and					
	phase angle errors.					
4.	Describe the dynamometer type power factor meter	10	3	C303.2	Understand	
	construction and operation.					
5.	Describe the determination of B-H curve by using	10	5	C303.5	Understand	
	method of reversals.					

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SET 2

Sub: Electrical Measurements Time: 1¹/₂ Hrs.

Date: 6-11-2017 Max Marks: 30M

Question 1 is compulsory. Answer one from 2 or 3 and one from 4 or 5.

S.no	Question	Mar	Uni	СО	Cognitive
		ks	t		Level
1.a)	Illustrate power factor in two wattmeter method.	2	3	C303.3	Remember
1.b)	Explain the advantages of instrument transformer.	2	4	C303.2	Remember
1.c)	List the three types of methods used for measurement of iron losses in ferromagnetic materials	2	5	C303.5	Remember
1.d)	Illustrate the equation of phase angle of current transformer	2	4	C303.2	Understand
1.e)	Define the problem creep in energy meter and explain the compensation.	2	3	C303.3	Understand
2.	Describe the operation of two wattmeter method and derive the power factor.	10	3	C303.3	Understand
3.	Describe the construction of current transformer and derive the equation for transformation ratio and phase angle. Explain the design considerations to reduce the turns ratio and phase angle errors.	10	4	C303.2	Understand
4.	Explain the operation of galtinsley potentiometer	10	4	C303.3	Understand
5.	Describe the operation of flux meter and derive the equation of flux.	10	2	C303.5	Understand

Signature of the faculty



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SET 2

Branch: EEE Sub: Electrical Measurements Time: 1½ Hrs.

Date: 6-11-2017 Max Marks: 30M

Question 1 is compulsory. Answer one from 2 or 3 and one from 4 or 5.

S.no	Question	Marks	Unit	СО	Cognitive Level
1.a)	Illustrate power factor in two wattmeter method.	2	3	C303.3	Remember
1.b)	Explain the advantages of instrument transformer.	2	4	C303.2	Remember
1.c)	List the three types of methods used for measurement of iron losses in ferromagnetic materials	2	5	C303.5	Remember
1.d)	Illustrate the equation of phase angle of current transformer	2	4	C303.2	Understand
1.e)	Define the problem creep in energy meter and explain the compensation.	2	3	C303.3	Understand
2.	Describe the operation of two wattmeter method and derive the power factor.	10	3	C303.3	Understand
3.	Describe the construction of current transformer and derive the equation for transformation ratio and phase angle. Explain the design considerations to reduce the turns ratio and phase angle errors.	10	4	C303.2	Understand
4.	Explain the operation of galtinsley potentiometer	10	4	C303.3	Understand
5.	Describe the operation of flux meter and derive the equation of flux.	10	2	C303.5	Understand

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Branch: EEE

Sub: Electrical Measurements

Time: 1¹/₂ Hrs.

Date: 6-11-2017 Max Marks: 30M

Question 1 is compulsory. Answer one from 2 or 3 and one from 4 or 5.

S.no	Question	Mar	Unit	СО	Cognitive Level
		ks			
1.a)	Give the reasons for using ring-type specimens for ballistic	2	5	C303.5	Remember
	tests				
1.b)	Define the power and energy.	2	3	C303.3	Remember
1.c)	Describe the difference between potential transformer and	2	4	C303.2	Remember
	current transformer.				
1.d)	Why the secondary of current transformer should not open	2	4	C303.2	Remember
	when primary taking the current.				
1.e)	Describe the equation for time period oscillation for	2	5	C303.5	Remember
	ballistic galvanometer.				
2.	Describe the moving iron power factor meter and explain	10	3	C303.2	Understand
	the advantages and disadvantages.				
3.	Derive the equation of transformation ratio and phase	10	4	C303.2	Understand
	angle of potential transformer and explain the design				
	considerations to reduce the turn's ratio and phase angle				
	errors.				
4.	Describe the ballistic galvanometer operation and derive	10	5	C303.5	Understand
	the charge equation.				
5.	Explain the applications of DC potentiometer.	10	4	C303.3	Understand

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B.Tech – III-I Semester (R15) MID II Examinations

Branch: EEE

SET 3 Date: 6-11-2017

Sub: Electrical Measurements Time: 1¹/₂ Hrs.

Max Marks: 30M

Question 1 is compulsory. Answer one from 2 or 3 and one from 4 or 5.						
S.no	Question	Mark	Un	CO	Cognitive	
		S	it		Level	
1.a)	Give the reasons for using ring-type specimens for ballistic	2	5	C303.5	Remember	
	tests					
1.b)	Define the power and energy.	2	3	C303.3	Remember	
1.c)	Describe the difference between potential transformer and	2	4	C303.2	Remember	
	current transformer.					
1.d)	Why the secondary of current transformer should not open	2	4	C303.2	Remember	
	when primary taking the current.					
1.e)	Describe the equation for time period oscillation for	2	5	C303.5	Remember	
	ballistic galvanometer.					
2.	Describe the moving iron power factor meter and explain	10	3	C303.2	Understand	
	the advantages and disadvantages.					
3.	Derive the equation of transformation ratio and phase	10	4	C303.2	Understand	
	angle of potential transformer and explain the design					
	considerations to reduce the turn's ratioand phase angle					
	errors.					
4.	Describe the ballistic galvanometer operation and derive	10	5	C303.5	Understand	
	the charge equation.					
5.	Explain the applications of DC potentiometer.	10	4	C303.3	Understand	

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SET 4

Sub: Electrical Measurements Time: 1¹/₂ Hrs.

Date: 6-11-2017 Max Marks: 30M

Question 1 is compulsory. Answer one from 2 or 3 and one from 4 or 5.

S.no	Question	Mar	Unit	СО	Cognitive Level
		ks			
1.a)	Explain how to compensate the LPF wattmeter.	2	3	C303.3	Remember
1.b)	Define ratio correction factor for instrument transformer.	2	4	C303.2	Remember
1.c)	Define the phase angle in current transformer and potential transformer.	2	4	C303.2	Remember
1.d)	Describe the difference between galvanometer and ballistic galvanometer.	2	5	C303.5	Remember
1.e)	Define the power and energy.	2	3	C303.3	Remember
2.a)	Classify and explain the single phase electrodynamometer power factor meters.	5	3	C303.2	Understand
2.b)	Describe the poly phase energy meter with neat diagram.	5	3	C303.3	Understand
3.	Describe the construction of current transformer and derive the equation for transformation ratio and phase angle. Explain the design considerations to reduce the turn's ratio and phase angle errors.	10	4	C303.2	Understand
4.	Describe the operation of flux meter and derive the equation of flux.	10	5	C303.5	Understand
5.	Describe the DC Crompton potentiometer with neat sketch and explain the applications.	10	4	C303.3	Understand

Signature of the faculty



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B.Tech – III-I Semester (R15) MID II Examinations

Branch: EEE

SET 4

Sub: Electrical Measurements Time: 1¹/₂ Hrs. Date: 6-11-2017 Max Marks: 30M

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S.no	Question	Marks	Unit	CO	Cognitive Level
1.a)	Explain how to compensate the LPF wattmeter.	2	3	C303.3	Remember
1.b)	Define ratio correction factor for instrument transformer.	2	4	C303.2	Remember
1.c)	Define the phase angle in current transformer and potential transformer.	2	4	C303.2	Remember
1.d)	Describe the difference between galvanometer and ballistic galvanometer.	2	5	C303.5	Remember
1.e)	Define the power and energy.	2	3	C303.3	Remember
2.a)	Classify and explain the single phase electrodynamometer power factor meters.	5	3	C303.2	Understand
2.b)	Describe the poly phase energy meter with neat diagram.	5	3	C303.3	Understand
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4.	Describe the operation of flux meter and derive the equation of flux.	10	5	C303.5	Understand
5.	Describe the DC Crompton potentiometer with neat sketch and explain the applications.	10	4	C303.3	Understand